

### REMARKS

Applicants have amended the specification to include a claim of priority to U.S. Patent No. 6,399,243 B1. The present application includes as an inventor one who was named as an inventor in U.S. Patent No. 6,399,243 B1. Applicants also have amended the specification to include a claim of priority to U.S. Patent No. 6,372,370 B1. The present application includes as an inventor one who was named as an inventor in U.S. Patent No. 6,372,370 B1.

Claims 15-43 are presented for examination. Applicants acknowledge the Examiner's indication that claims 39-43 are allowed. Claims 15-38 were rejected on various grounds, each of which is addressed below.

### Rejections Under 35 U.S.C. § 102

#### Urry (U.S. Patent No. 6,383,674 B1)

Claims 15-19, 26, 27, 29, 32 and 33 were rejected under 35 U.S.C. § 102(e) as being anticipated by Urry (U.S. Patent No. 6,383,674 B1). Applicants traverse this rejection.

Claim 15 is directed to an air recovery battery that includes a cathode including a cathode paste containing at least about 60% by weight MnO<sub>2</sub>. Claims 16-19, 26, 27, 29, 32 and 33 depend, directly or indirectly, from claim 15 and thus contain this limitation as well.

Urry does not disclose a battery with a cathode having at least 60% by weight MnO<sub>2</sub>. Urry discloses an electrochemical cell having a cathode including a manganese dioxide coating. (See, e.g., Urry, col. 6, lines 34-38.) Regarding Urry, the Examiner stated, "Urry teaches an air battery comprising a container (20) having . . . a cathode (60) coated on a collector (foil), the coating may comprise 100% MnO<sub>2</sub> . . . ." (February 21, 2006 Office Action, p. 2.) The Examiner referred to the following section of Urry as support for the argument that the cathode in Urry contains 100% MnO<sub>2</sub>:

Positive electrode 60 may be formed by coating MnO<sub>2</sub> or EMD on a nickel-coated or plain steel thin foil. The MnO<sub>2</sub> or EMD is preferably coated on both sides of the foil to provide a positive electrode 60 having a thickness of approximately

5 mils (0.127 mm). The steel foil upon which the  $\text{MnO}_2$  or EMD is coated preferably has a thickness of between 0.5 and 1.0 mil (0.0127 to 0.0254 mm). Although the ratio of  $\text{MnO}_2$  to Zn within a cell of the present invention may vary, it is preferable that only enough  $\text{MnO}_2$  per cell is provided to handle at least one pulse discharge. The  $\text{MnO}_2$  may then be recharged by the air electrode during a pulse and during a rest period following the pulse. (Urry, col. 6, lines 34-45.)

Applicants note, however, that after the above-quoted section of Urry, Urry discloses calculations used to estimate the performance of a cell including the above-referenced cathode. (See, e.g., Urry, col. 7, lines 15-67.) In disclosing these calculations, Urry states that the positive electrode is made out of a "graphite/ $\text{MnO}_2$  mixture having about 70% volume solids bonded to the foil . . . ." (Id., col. 7, lines 21-22, emphasis added.) Thus, it is clear that the cathode disclosed in Urry is not 100%  $\text{MnO}_2$ . Rather, it is a mixture of  $\text{MnO}_2$ , graphite, and at least one other component. Therefore, claims 15-19, 26, 27, 29, 32 and 33 are not anticipated by Urry, and the rejection under 35 U.S.C. § 102(e) should be withdrawn.

Kaplan et al. (U.S. Patent No. 6,399,243 B1)

Claims 15-29 and 33-38 were rejected under 35 U.S.C. § 102(e) as anticipated by Kaplan et al. (U.S. Patent No. 6,399,243 B1). Applicants have amended the specification to include a priority claim to U.S. Patent No. 6,399,243 B1, and submit that this rejection should be withdrawn.

**Rejections Under 35 U.S.C. § 103**

Urry (U.S. Patent No. 6,383,674 B1) and Passaniti et al. (U.S. Patent No. 6,261,709)

Claims 20-25 and 34-38 were rejected under 35 U.S.C. § 103(a) as unpatentable over Urry (U.S. Patent No. 6,383,674 B1) in view of Passaniti et al. (U.S. Patent No. 6,261,709). Applicants traverse this rejection.

Claims 20-25 depend, directly or indirectly, from claim 15. Therefore, the cathode paste of the battery cathode of claims 20-25 contains at least about 60% by weight  $\text{MnO}_2$ . Claim 34 is directed to a method for making an air recovery battery that includes forming a cathode paste

that contains at least about 60% by weight MnO<sub>2</sub>. Claims 35-38 depend, directly or indirectly, from claim 34 and therefore also contain this limitation.

As discussed above, Urry does not disclose a weight percent of MnO<sub>2</sub> for its cathode paste. Passaniti does not cure the deficiencies of Urry because Passaniti also does not disclose a weight percent for MnO<sub>2</sub> in a cathode paste. The rejection of claims 20-25 and 34-38 under 35 U.S.C. § 103(a) should therefore be withdrawn.

Urry (U.S. Patent No. 6,383,674 B1) and Kordesch et al. (U.S. Patent No. 3,945,847)

Claims 20-23, 27, 28, 30, 31 and 34-38 were rejected under 35 U.S.C. § 103(a) as unpatentable over Urry (U.S. Patent No. 6,383,674 B1) in view of Kordesch et al. (U.S. Patent No. 3,945,847). Applicants traverse this rejection.

Claims 20-23, 27, 28, 30, and 31 depend, directly or indirectly, from claim 15. Claims 35-38 depend, directly or indirectly, from claim 34. All of the claims require a cathode with a cathode paste including at least about 60% by weight MnO<sub>2</sub>, or the formation of a cathode paste including at least about 60% by weight MnO<sub>2</sub>. As discussed above, Urry does not disclose such a cathode paste.

Furthermore, there would have been no motivation for a person of skill in the art to combine the teachings of Urry with those of Kordesch. Urry discloses an air-assisted electrochemical cell that is structured so as to minimize the passage of air to the zinc anode. (See, e.g., Urry, col. 2, lines 25-28 and 41-61.) Kordesch discloses the use of a polymeric binder to give the MnO<sub>2</sub> in an electrode better cohesion, and does not even mention air-assisted electrochemical cells. (See, e.g., Kordesch, col. 1, lines 62-64; col. 2, lines 61-66; and col. 7, line 66 — col. 8, line 1.) Thus, contrary to the Examiner's claim, it would not have been obvious to one of skill in the art to combine the teachings of Urry with those of Kordesch. There would have been no motivation to combine Urry, which relates to an air-assisted cell, with Kordesch, which does not relate to cells containing air ports, as the chemistries and requirements for air-assisted cells (i.e., cells with air ports) are different from those for cells without air ports.

Applicant : Alexander Kaplan et al.  
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Therefore, the rejection of claims 20-23, 27, 28, 30, 31 and 34-38 based on the combination of Urry with Kordesch should be withdrawn.


Kaplan et al. (U.S. Patent No. 6,399,243 B1)

Claims 30 and 31 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kaplan et al. (U.S. Patent No. 6,399,243 B1). As noted above, Applicants have amended the specification to include a priority claim to U.S. Patent No. 6,399,243 B1. Therefore, Applicants submit that this rejection should be withdrawn.

Applicants believe that the claims are in condition for allowance, which action is requested. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: March 6, 2006

  
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